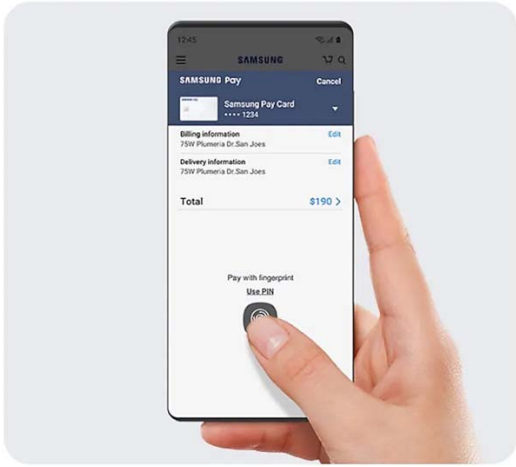
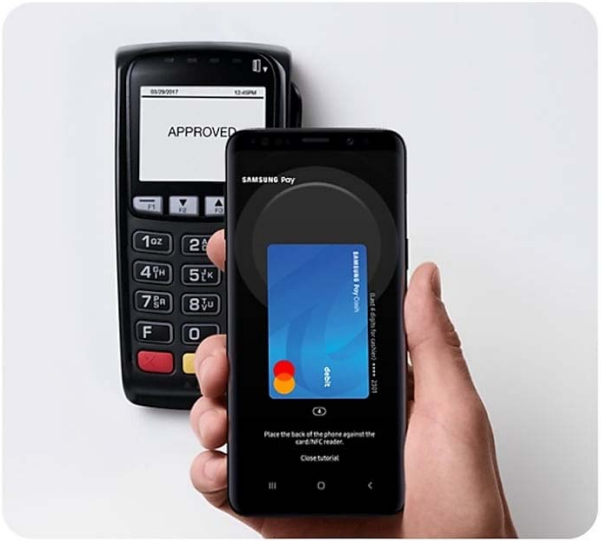
# Exhibit F

**U.S. Patent No. 10,339,520**

| Claim No. | Claim Language | Samsung Pay-enabled computing device |
|---|---|---|
| 1 [Preamble] | An electronic device comprising | A Samsung Pay-enabled computing device is an electronic device.<br>  <br>  <br>*Samsung Pay*, Samsung, https://www.samsung.com/us/samsung-pay/ (last visited Apr. 20, 2022). *See also* Lexy Savvides, Samsung Pay: Everything you need to know (FAQ), CNET (July 21, 2021 3:00 a.m. PT), https://www.cnet.com/how-to/samsung-pay-everything-you-need-to-know-faq-mobile-wallet/. |
| 1a | a near-field communication (NFC) unit; | A Samsung Pay-enabled computing device includes a near-field communication (NFC) unit.<br>  <br>*Samsung Pay*, Samsung, https://www.samsung.com/us/samsung-pay/ (last visited Apr. 20, 2022). |

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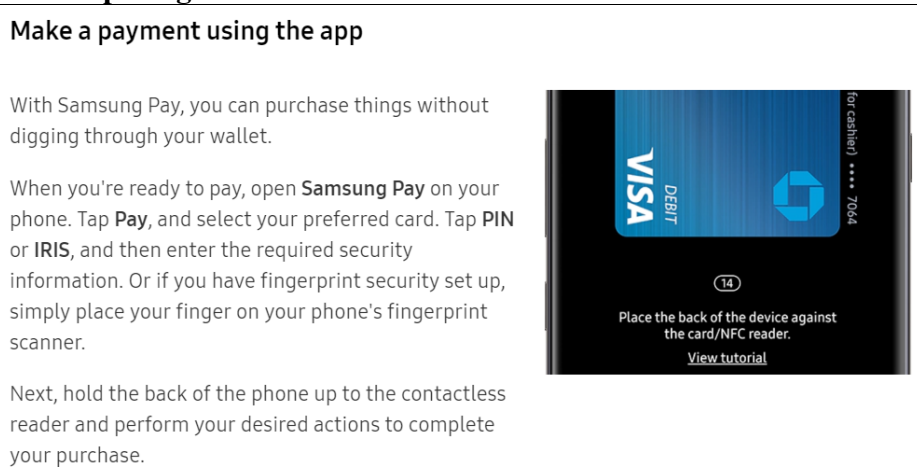
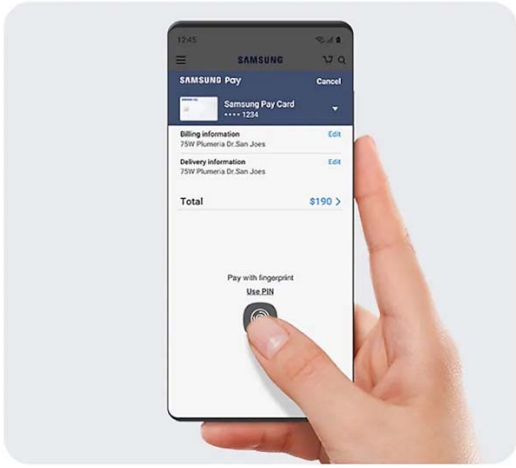
| | |  *Make an in-store payment with Samsung Pay*, Samsung, https://www.samsung.com/us/support/answer/ANS00045102/ (last visited Apr. 20, 2022); *see also* Tech With Brett, *How to Setup and Use Samsung Pay*, YouTube (Oct. 1, 2018), https://youtu.be/zR3xz6GYIzc?t=389; Jessica Dolcourt, *How Samsung Pay works (pictures)*, CNET (Mar. 3, 2015 8:57 a.m. PT), https://www.cnet.com/pictures/how-samsung-pay-works-pictures/2/. |
| 1b | a touch sensor array; | A Samsung Pay-enabled computing device includes a touch sensor array.<br>  <br>  <br>*Samsung Pay*, Samsung, https://www.samsung.com/us/samsung-pay/ (last visited Apr. 20, 2022). *See also What to do when the touchscreen of Galaxy Device responds slowly or improperly?*, Samsung (Sept. 22, 2020), https://www.samsung.com/ph/support/mobile-devices/what-to-do-when-the-touchscreen-of-galaxy-device-responds-slowly-or-improperly/. |

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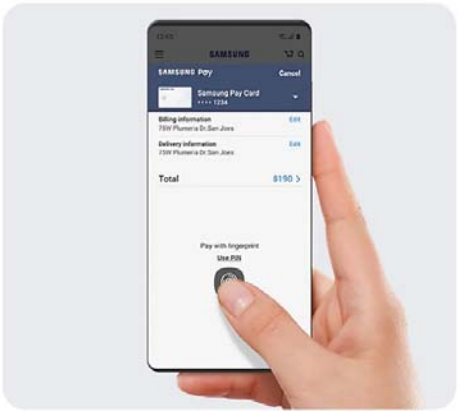
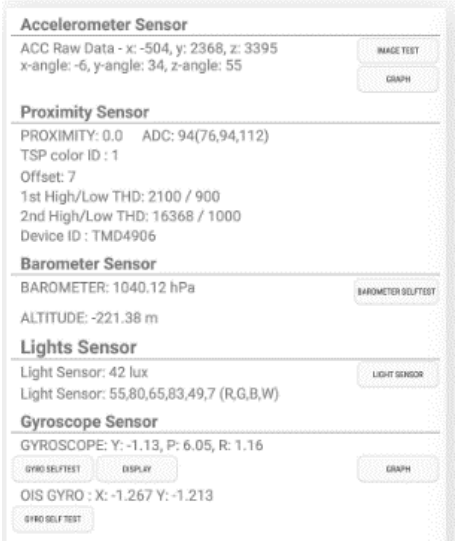
| 1c | a display; | A Samsung Pay-enabled computing device includes a display.<br>  <br><br>  <br><br>*Samsung Pay*, Samsung, https://www.samsung.com/us/samsung-pay/ (last visited Apr. 20, 2022). *See also Adjust your Galaxy phone's display settings*, Samsung, https://www.samsung.com/us/support/answer/ANS00079034/ (last visited Apr. 20, 2022). |
| 1d | a motion rate detection array; | A Samsung Pay-enabled computing device includes a motion rate detection array.<br>  <br><br>*See* Amboy Manalo, *This Samsung Galaxy Dialer Code Lets You Test Each Sensor on Your Phone, Gadget Hacks*, Gadget Hacks (Mar. 5, 2018 2:09 PM), https://android.gadgethacks.com/how-to/samsung-galaxy-dialer-code-lets-you-test-each-sensor-your-phone-0183239/. |

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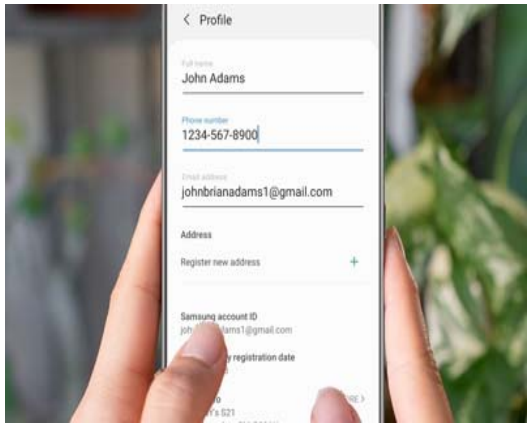
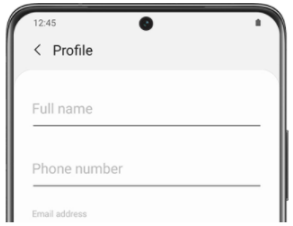
| 1e | a memory for storing a user data and a currency amount; | A Samsung Pay-enabled computing device includes a memory that stores a user data and a currency amount. |




Edit your profile

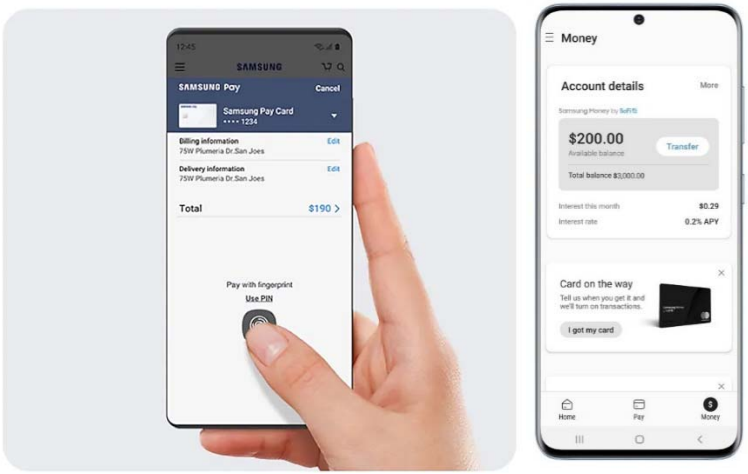
In order to use Samsung Pay, you'll need to enter certain information in your profile, such as your name and address.

1. To edit your profile, navigate to and open **Samsung Pay**, and then tap **Menu** (the three horizontal lines).
2. Tap **Settings**, and then swipe to and tap **Profile**.
3. You can edit your full name, phone number, and email address by tapping the desired field. You can also view your Samsung account ID, Samsung Pay registration date, and Device info from this page.




4. Tap **Register new address** to add a new address. Up to three addresses can be saved.
5. To set a particular address as your default, tap **Edit** (the pencil icon) next to your desired address, and then swipe to and select **Default address**.
6. Once you're done editing the address, tap **Save** to apply your changes.

*Edit your profile information in Samsung Pay*, Samsung, https://www.samsung.com/us/support/answer/ANS00078427/ (last visited Apr. 20, 2022).




*Samsung Pay*, Samsung, https://www.samsung.com/us/samsung-pay/ (last visited Apr. 20, 2022). *Introducing Samsung Money by SoFi: Do More With Your Money*, Samsung. https://news.samsung.com/us/introducing-samsung-money-samsung-pay-sofi/ (last visited Apr. 20, 2022).

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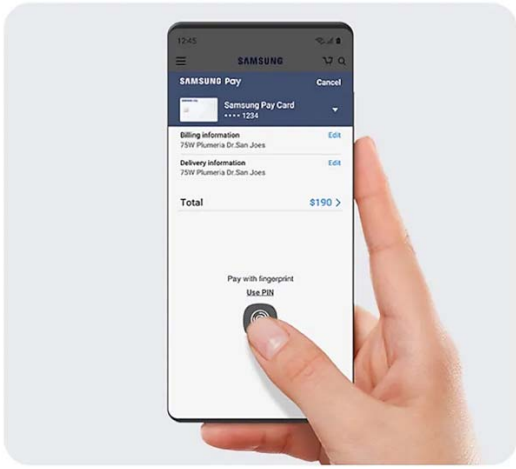
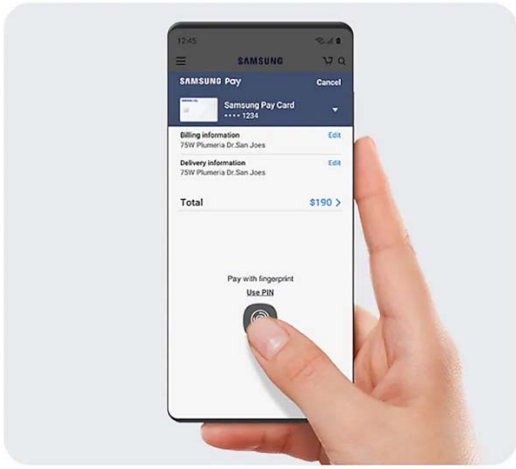
| 1f | a processor operatively coupled to the NFC unit, the touch sensor array, the display, the motion rate detection array, and the memory; | A Samsung Pay-enabled computing device includes a processor operatively coupled to the NFC unit, the touch sensor array, the display, the motion rate detection array, and the memory.<br>  <br>  <br>*Samsung Pay*, Samsung, https://www.samsung.com/us/samsung-pay/ (last visited Apr. 20, 2022). |
| 1g | a computer readable medium having instructions stored thereon that, responsive to execution by the electronic device, cause the electronic device to perform operations comprising: | A Samsung Pay-enabled computing device includes a computer readable medium having instructions stored thereon that, responsive to execution by the electronic device, cause the device to perform operations.<br>  <br>  <br>*Samsung Pay*, Samsung, https://www.samsung.com/us/samsung-pay/ (last visited Apr. 20, 2022). |

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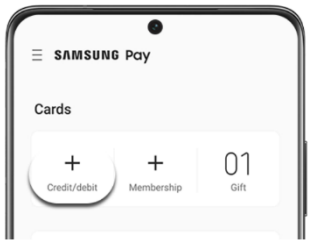
| 1h | accepting a user input of issued payments information input at a touch screen display of the electronic device, | A Samsung Pay-enabled computing device accepts a user input of issued payments information input at a touch screen display.<br><br>**Add a payment card**<br><br>Samsung has you covered, because Samsung Pay has partnered with top U.S. banks and credit card companies, like American Express, Visa, and MasterCard. Plus, we're always expanding our list of financial partners.<br><br>1. Navigate to and open **Samsung Pay** on your phone.<br>2. Tap **Menu** (the three horizontal lines) in the top left corner, and then tap **Cards**.<br>3. Next, tap **Add card**; it looks like a credit card with a plus sign next to it. Next, tap **Add credit/debit card**.<br>4. Follow the instructions to **register** your card. When you add a card, you must agree to the card's terms and conditions.<br>5. If you have any questions about the terms, contact the card issuer.<br><br>  <br><br>*Add credit or debit cards to Samsung Pay*, Samsung, https://www.samsung.com/us/support/answer/ANS00045170/ (last visited Apr. 21, 2022).<br><br>How do I add my Chase cards to Samsung Pay?<br><br>1. Choose the Samsung Pay icon, and log in using your Samsung account information.<br>2. If you do not already have a Samsung account, you can create one.<br>3. Once logged in you can, touch ADD CARD in Samsung Pay app to begin the process of adding your card.<br>4. Center the card in the on-screen window and Samsung Pay will read the card number. Or you can enter the card number manually.<br>5. Verify or enter the additional information such has Cardholder Name, Expiration Date and Security Code (CVV).<br>6. Accept the Terms and Conditions for adding a card to a digital wallet by touching AGREE TO ALL.<br>7. You may be prompted to select a delivery method for receiving a One Time Passcode, such as SMS or EMAIL or CALL IN.<br>8. The One Time Passcode will be delivered to the destination selected. Enter the code received and touch SUBMIT.<br><br>Once complete, your card is ready for use in Samsung Pay.<br><br>*How to use Samsung Pay*, Chase, https://www.chase.com/digital/digital-payments/samsung-pay/faqs/how-to-use (last visited Apr. 20, 2022). |

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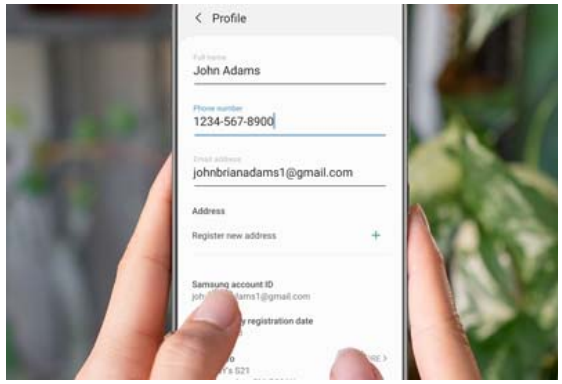
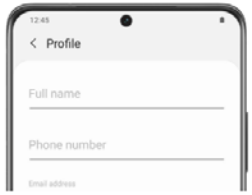
| 1i | wherein the information comprising an issuer provided payment information; | A Samsung Pay-enabled computing device accepts user input of issued payments information input, wherein the information comprises an issuer provided payment information.<br><br>How do I add my Chase cards to Samsung Pay?<br><br>1. Choose the Samsung Pay icon, and log in using your Samsung account information.<br>2. If you do not already have a Samsung account, you can create one.<br>3. Once logged in you can, touch ADD CARD in Samsung Pay app to begin the process of adding your card.<br>4. Center the card in the on-screen window and Samsung Pay will read the card number. Or you can enter the card number manually.<br>5. Verify or enter the additional information such has Cardholder Name, Expiration Date and Security Code (CVV).<br>6. Accept the Terms and Conditions for adding a card to a digital wallet by touching AGREE TO ALL.<br>7. You may be prompted to select a delivery method for receiving a One Time Passcode, such as SMS or EMAIL or CALL IN.<br>8. The One Time Passcode will be delivered to the destination selected. Enter the code received and touch SUBMIT.<br><br>Once complete, your card is ready for use in Samsung Pay.<br><br>*How to use Samsung Pay*, Chase, https://www.chase.com/digital/digital-payments/samsung-pay/faqs/how-to-use (last visited Apr. 20, 2022). |
| 1j | wherein the memory comprises device-specific and user-specific information; and, | The memory of the Samsung Pay-enabled computing device includes device specific and user-specific information.<br><br>  <br><br>Edit your profile<br><br>In order to use Samsung Pay, you'll need to enter certain information in your profile, such as your name and address.<br><br>1. To edit your profile, navigate to and open **Samsung Pay**, and then tap **Menu** (the three horizontal lines).<br>2. Tap **Settings**, and then swipe to and tap **Profile**.<br>3. You can edit your full name, phone number, and email address by tapping the desired field. You can also view your Samsung account ID, Samsung Pay registration date, and Device info from this page.<br><br>  <br><br>4. Tap **Register new address** to add a new address. Up to three addresses can be saved.<br>5. To set a particular address as your default, tap **Edit** (the pencil icon) next to your desired address, and then swipe to and select **Default address**.<br>6. Once you're done editing the address, tap **Save** to apply your changes.<br><br>*Edit your profile information in Samsung Pay*, Samsung, https://www.samsung.com/us/support/answer/ANS00078427/ (last visited Apr. 20, 2022). |

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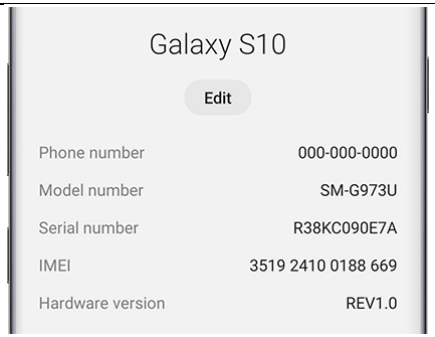
| | |  <br>*Finding your phone and tablet's IMEI, model number, or serial number*, Samsung, https://www.samsung.com/us/support/answer/ANS00048604/; (last visited Apr. 20, 2022). |
| 1k | wherein the user provided payment information is communicated wirelessly; and, | The Samsung Pay-enabled computing device communicates wirelessly the user provided payment information.<br>2. **What is a token and how is it generated?**<br>A digital token is created to represent consumers' payment credentials. By substituting the real card number with a token, Samsung Pay avoids putting the real card numbers at risk of theft and misuse. Like credit and debit card numbers, the purpose of the digital token is to route transactions to the correct payment network and issuer. Samsung Pay does not store credit or debit card numbers. Instead, Samsung Pay uses tokens for transactions. Tokens are generated by the payment network, and not by the Samsung Pay handset. The card issuers and payment networks set the rules and parameters of the tokenization service, conduct account verification and cardholder authorization during the token request stage (when the token is provisioned), and authorize transactions.<br>FAQs, Samsung (Aug. 7, 2016) *available at* https://security.samsungmobile.com/doc/Press_Guidance_Samsung_Pay.pdf.<br>**3.1 In-Store EMV Contactless Payments with Device-Centric Digital Wallets**<br>Apple, Google, and Samsung were among the first to implement EMV payment tokens in digital wallets that hold credentials for several payments use cases. These device-centric digital wallets play the role of a token requestor; they may capture the cardholder's PAN and request that it be replaced with a payment token from a TSP. Tokenization of payment credentials in digital wallets enables issuers to establish a secure presence on a wallet.<br>US Payments Forum, *EMV Payment Tokenization Primer and Lessons Learned* at 12 (June 2019) *available at* https://www.uspaymentsforum.org/wp-content/uploads/2019/06/EMV-Payment-Tokenization-Primer-Lessons-Learned-FINAL-June-2019.pdf. |

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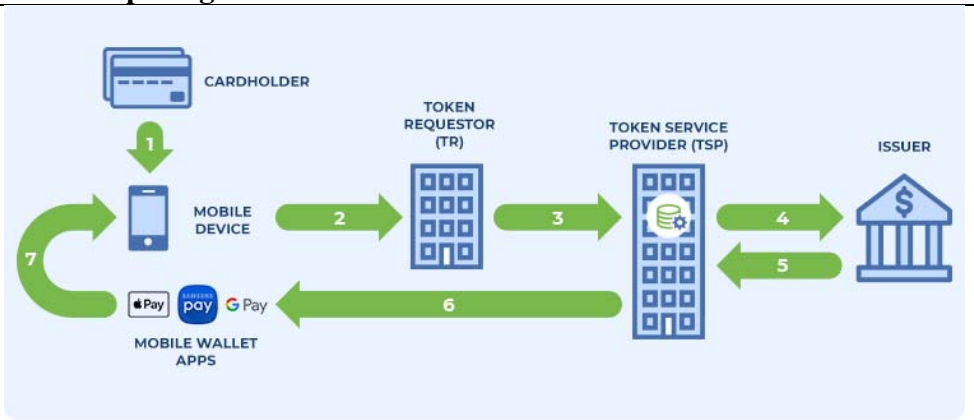
| | |  *Mobile payments with digital wallets and tokenization: How Google Pay, Apple Pay and Samsung Pay protect your card details*, Advantio (Feb. 22, 2021), https://www.advantio.com/blog/mobile-payments-with-digital-wallets-and-tokenization-how-google-pay-apple-pay-and-samsung-pay-protect-your-card-details; *See also* EMVCo, *EMV® Payment Tokenisation Specification – Technical Framework v2.1* at 35–36 (Jun. 14, 2019) *available at* https://www.emvco.com/emv-technologies/payment-tokenisation/. |
| 11 | wirelessly receiving a static device account number payment information for storage on the electronic device; and | The Samsung Pay-enabled computing device wirelessly receives a static device account number payment information for storage on the electronic device.<br>2. **What is a token and how is it generated?**<br>A digital token is created to represent consumers' payment credentials. By substituting the real card number with a token, Samsung Pay avoids putting the real card numbers at risk of theft and misuse. Like credit and debit card numbers, the purpose of the digital token is to route transactions to the correct payment network and issuer. Samsung Pay does not store credit or debit card numbers. Instead, Samsung Pay uses tokens for transactions. Tokens are generated by the payment network, and not by the Samsung Pay handset. The card issuers and payment networks set the rules and parameters of the tokenization service, conduct account verification and cardholder authorization during the token request stage (when the token is provisioned), and authorize transactions.<br>FAQs, Samsung (Aug. 7, 2016) *available at* https://security.samsungmobile.com/doc/Press_Guidance_Samsung_Pay.pdf.<br>**3.1 In-Store EMV Contactless Payments with Device-Centric Digital Wallets**<br>Apple, Google, and Samsung were among the first to implement EMV payment tokens in digital wallets that hold credentials for several payments use cases. These device-centric digital wallets play the role of a token requestor; they may capture the cardholder's PAN and request that it be replaced with a payment token from a TSP. Tokenization of payment credentials in digital wallets enables issuers to establish a secure presence on a wallet. |

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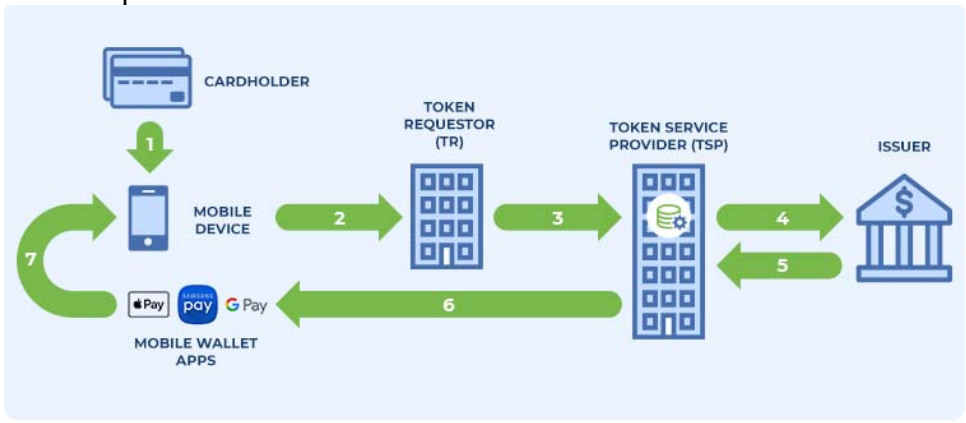
| | | US Payments Forum, *EMV Payment Tokenization Primer and Lessons Learned* at 12 (June 2019) *available at* https://www.uspaymentsforum.org/wp-content/uploads/2019/06/EMV-Payment-Tokenization-Primer-Lessons-Learned-FINAL-June-2019.pdf.<br>  <br><br>*Mobile payments with digital wallets and tokenization: How Google Pay, Apple Pay and Samsung Pay protect your card details*, Advantio (Feb. 22, 2021), https://www.advantio.com/blog/mobile-payments-with-digital-wallets-and-tokenization-how-google-pay-apple-pay-and-samsung-pay-protect-your-card-details; *See also* EMVCo, *EMV® Payment Tokenisation Specification – Technical Framework v2.1* at 35–36 (Jun. 14, 2019) *available at* https://www.emvco.com/emv-technologies/payment-tokenisation/. |
| 1m | wherein at least a portion of the payment information is a limited-use number for limited-use by the device, in place of a issuer provided payment information; and, | The Samsung Pay-enabled computing device includes a payment information, at least a portion of which is a limited-use number for limited use by the device, in place of an issuer provided payment information.<br>2. **What is a token and how is it generated?**<br>A digital token is created to represent consumers' payment credentials. By substituting the real card number with a token, Samsung Pay avoids putting the real card numbers at risk of theft and misuse. Like credit and debit card numbers, the purpose of the digital token is to route transactions to the correct payment network and issuer. Samsung Pay does not store credit or debit card numbers. Instead, Samsung Pay uses tokens for transactions. Tokens are generated by the payment network, and not by the Samsung Pay handset. The card issuers and payment networks set the rules and parameters of the tokenization service, conduct account verification and cardholder authorization during the token request stage (when the token is provisioned), and authorize transactions.<br>FAQs, Samsung (Aug. 7, 2016) *available at* https://security.samsungmobile.com/doc/Press_Guidance_Samsung_Pay.pdf. |
| 1n | dynamically-generating a one-time limited-use numbers based on | The Samsung Pay-enabled computing device dynamically generates a one-time limited use number for each transaction based at least one of a set of information including: user-identifying information; user secrets; device information; device secrets; time; merchant; facility location; sequence count; payment information; account information; amount; and transaction information. |

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| | at least one of a set of information including: user-identifying information; user secrets; device information; device secrets; time; merchant; facility location; sequence count; payment information; account information; amount; and transaction information; and | 3. **How is a cryptogram generated?**<br>A cryptogram is generated using at least three pieces of information: the digital token, the application transaction counter (ATC), and a secret key. The cryptogram is designed to appear fully random to anyone that does not have the secret key. This works to prevent a cryptogram from being guessed. The secret key is generated by the payment networks and is protected, end to end, between the payment networks and TrustZone on the device. Only one cryptogram can be generated per explicit user authorization. The cryptograms are used to tie an ATC to a digital token and help to prevent modification of the ATC. This in turn helps to prevent transaction information used for one purchase from being reused for multiple purchases.<br>FAQs, Samsung (Aug. 7, 2016) *available at* https://security.samsungmobile.com/doc/Press_Guidance_Samsung_Pay.pdf. *See also Mobile payments with digital wallets and tokenization: How Google Pay, Apple Pay and Samsung Pay protect your card details*, Advantio (Feb. 22, 2021), https://www.advantio.com/blog/mobile-payments-with-digital-wallets-and-tokenization-how-google-pay-apple-pay-and-samsung-pay-protect-your-card-details; US Payments Forum, *EMV Payment Tokenization Primer and Lessons Learned* at 12 (June 2019) *available at* https://www.uspaymentsforum.org/wp-content/uploads/2019/06/EMV-Payment-Tokenization-Primer-Lessons-Learned-FINAL-June-2019.pdf; EMVCo, *EMV® Payment Tokenisation Specification – Technical Framework v2.1* at 35–36 (Jun. 14, 2019) *available at* https://www.emvco.com/emv-technologies/payment-tokenisation/. |
| 1o | using said static device account number and said dynamically generated one-time limited-use number together in the place of issuer provided payment information for making a payment transaction. | The Samsung Pay-enabled computing device uses the static device account number and the dynamically generated one-time limited-use number together in place of issuer provided payment information for making a payment transaction. |

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| | | 1. **How does Samsung Pay work?**<br>Each time Samsung Pay is used for a transaction, the Samsung Pay handset sends at least three pieces of information.<br><br>The first is a digital token that represents the credit or debit card information. The digital token is a surrogate credit or debit card number. The digital token's primary purpose is to route transactions to the correct payment network and to the correct issuer.<br><br>The second piece of information is the application transaction counter (ATC). The ATC is a counter that is updated for every transaction. Its purpose is to help ensure that the same transaction information cannot be replayed to make multiple purchases. Payment networks use this number to track the sequence of transactions and determine whether an attempted transaction is older than the last one approved or is otherwise out of sequence. If so, it is an indication that something is amiss, and appropriate action can be taken.<br><br>The third piece of information is the cryptogram. The cryptogram is an authentication code generated using, at a minimum, a secret key, the digital token and the ATC. Cryptograms serve to validate that the transaction information has not been modified and that it was generated by the expected user's handset.<br><br>FAQs, Samsung (Aug. 7, 2016) *available at* https://security.samsungmobile.com/doc/Press_Guidance_Samsung_Pay.pdf. *See also Mobile payments with digital wallets and tokenization: How Google Pay, Apple Pay and Samsung Pay protect your card details*, Advantio (Feb. 22, 2021), https://www.advantio.com/blog/mobile-payments-with-digital-wallets-and-tokenization-how-google-pay-apple-pay-and-samsung-pay-protect-your-card-details; US Payments Forum, *EMV Payment Tokenization Primer and Lessons Learned* at 12 (June 2019) *available at* https://www.uspaymentsforum.org/wp-content/uploads/2019/06/EMV-Payment-Tokenization-Primer-Lessons-Learned-FINAL-June-2019.pdf; EMVCo, *EMV® Payment Tokenisation Specification – Technical Framework v2.1* at 35–36 (Jun. 14, 2019) *available at* https://www.emvco.com/emv-technologies/payment-tokenisation/. |